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(54) Title: DNA ENCODING FLAVIN-ADENINE-DINUCLEOTIDE-DEPENDENT-D-ERYTHRONATE-4-PHOSPHATE-DEHYDROGENASE, PDXR, AND MICROBIAL PRODUCTION OF VITAMIN B<sub>6</sub>

(57) Abstract: The present invention relates to a DNA encoding a novel flavin adenine dinucleotide (FAD)-dependent D-erythronate 4-phosphate (EN4P) dehydrogenase originated from *Sinorhizobium meliloti*, which is involved in vitamin B<sub>6</sub> biosynthesis, and a recombinant microorganism transformed with a vector having the DNA. It also relates to a process for production of vitamin B<sub>6</sub> by using the recombinant microorganism. "Vitamin B<sub>6</sub>" as used in this invention includes pyridoxol (PN), pyridoxal and pyridoxamine. Vitamin B<sub>6</sub> is a vitamin indispensable to human beings or other animals, and is used as a raw material of medicines or as feed additives.

# INTERNATIONAL SEARCH REPORT

PCT/03/10684

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 C12N15/53 C12N9/04 C12P19/42

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 IPC 7 C12N C12P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

MEDLINE, EPO-Internal, EMBASE, BIOSIS, CHEM ABS Data, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CAPELA D ET AL: "Analysis of the chromosome sequence of the legume symbiont <i>Sinorhizobium meliloti</i> strain 1021" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, vol. 98, no. 17, 2001, pages 9877-9882, XP002226725 ISSN: 0027-8424 abstract	1-8
X	-& DATABASE SWALL 'Online! 1 December 2001 (2001-12-01) CAPELA,D. ET AL.: "Putative oxidoreductase protein." Database accession no. Q92RK3 XP002266688 the whole document	
X	-& DATABASE INTERPRO 'Online! 2 September 2002 (2002-09-02)	
		-/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the International search

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## INTERNATIONAL SEARCH REPORT

PCT 03/10684

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>"FAD linked oxidase, N-terminal" retrieved from EBI Database accession no. IPR006094 XP002266689 the whole document</p> <p>-----</p> <p>PEASE ANDREW J ET AL: "Positive growth rate-dependent regulation of the pdxA, ksgA, and pdxB genes of Escherichia coli K-12." JOURNAL OF BACTERIOLOGY. UNITED STATES MAR 2002, vol. 184, no. 5, March 2002 (2002-03), pages 1359-1369, XP002266687 ISSN: 0021-9193 abstract page 1368 -page 1369</p> <p>-----</p>	9-11